

## REMARKS

In the Office Action mailed July 25, 2002, the Examiner allowed claims 5-8. Applicants would like to thank the Examiner for allowing Claims 5-8. In addition, Applicants would like to thank the Examiner and her Primary Examiner for the courtesies extended to the Applicants' representative during a phone interview conducted on October 3, 2002.

In the Office Action, the Examiner objected to the disclosure because of the paragraph on page 4, lines 4. In response, Applicants have amended the paragraph, and respectfully request that the Examiner withdraw the objection to the disclosure.

In the Office Action, the Examiner rejected Claim 6 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. In response, Applicants have amended Claim 6, and respectfully request that the Examiner withdraw the rejection to Claim 6.

In the Office Action, the Examiner rejected Claims 1-4 under 35 U.S.C. § 102(e) as being anticipated by Miyasaka (U.S. Patent No. 5,869,208) ("Miyasaka"). To the extent that the rejection applies to the amended claims, Applicants respectfully traverse the rejection.

Applicants respectfully submit that Miyasaka only teaches a positive electrode active material having the formula  $\text{Li}_{0.1-1.2}\text{Mn}_{0.2}\text{M}_{0.2}\text{O}_{4-4.3}$  (Miyasaka, Abstract) or  $\text{LiMn}_2\text{O}_4$  (Miyasaka, col. 5, line 8). Applicants respectfully submit that none of the manganese-based compounds in Applicants' independent Claim 1 and dependent Claims 2-4 are taught or suggested by Miyasaka. Applicants respectfully request that the Examiner withdraw the rejection to Claims 1-4 under 35 U.S.C. § 102(e).

In this response, Applicants have added new independent Claim 9 and dependent Claims 10-12. Applicants respectfully submit that independent Claim 9 and dependent Claims 10-12 are not anticipated or rendered obvious by the art of record. Specifically, Claim 9 recites a positive electrode comprising a plurality of particles where each of the active material particles is coated with a metallic oxide, and the positive

electrode is formed with the coated particles. In contrast, the protective layer of Miyasaka is coated on the positive electrode after the positive electrode has been formed, "the protective layer is preferably formed on the surface of the positive electrode by coating a mixture of particles of the electro-insulative material and a small amount of a binder or a coating aid." (Miyasaka, col. 7, lines 18-21.) Applicants respectfully submit that Miyasaka does not teach or suggest the desirability of coating each of the active material particles prior to forming the positive electrode as recited in Applicants' Claim 9. In addition, Applicants are submitting herewith a Declaration Pursuant to 37 C.F.R. § 1.132 demonstrating the unexpectedly superior cycle life characteristics of a battery having the structure claimed in Claim 9 as compared to a battery formed as taught by Miyasaka.

Attached hereto is a marked-up version of the changes made to the claims by the current Amendment. The attachment is captioned, "VERSION WITH MARKINGS TO SHOW CHANGES MADE."

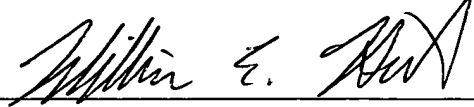
### CONCLUSION

In view of the foregoing, it is believed that all claims now pending patentably define the subject invention over the prior art of record and are in condition for allowance, and such action is earnestly solicited at the earliest possible date.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2666 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17, particularly, extension of time fees.

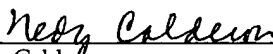
Respectfully submitted,  
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Dated: 10/28/02

  
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CERTIFICATE OF MAILING:  
I hereby certify that this correspondence is being deposited as First Class Mail with the United States Postal Service in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231 on October 28, 2002.

  
Nedy Calderon

10/28/02  
Date

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION

On page 4, the paragraph beginning on line 4, has been amended as follows:

Thereafter, the powder is coated with an alkoxide solution. The alkoxide solution is formed by the reaction of an alcohol with a metal being 1 to 50 weight percent of the alcohol. The metal may be preferably selected from Mg, Al, Co, K, Na, Ca, Ti or Sr. More preferably, the metal is selected from ~~Al~~, Mg, Ti or Al. An alternative alkoxide is a silicon alkoxide formed by a reaction of an alcohol with silicon. The alcohol is preferably selected from methanol or ethanol. When the metal or silicon is less than 1 weight percent of the alcohol, the coating effect of the metallic alkoxide solution onto the powder is not induced. In contrast, when the metal or silicon is more than 50 weight percent of the alcohol, the coating layer of the metallic alkoxide solution becomes undesirably thick. A sputtering technique, a chemical vapor deposition (CVD) technique, a dip coating technique and other general-purpose coating techniques may be employed for the coating use. Among the techniques, the dip coating technique may be preferably used for coating the alkoxide solution onto the powder.

IN THE CLAIMS

The claims have been amended as follows:

1. (Four Times Amended) A positive active material for rechargeable lithium batteries, the positive active material comprising:

an active material component processed from a manganese-based compound, the manganese-based compound being selected from the group consisting of  $\text{Li}_x\text{MnO}_{2z}$ ,  $\text{Li}_x\text{MnF}_2$ ,  $\text{Li}_x\text{MnS}_2$ ,  $\text{Li}_x\text{Mn}_{1-y}\text{M}_y\text{O}_2$ ,  $\text{Li}_x\text{Mn}_{1-y}\text{M}_y\text{O}_{2-z}\text{F}_z$ ,  $\text{Li}_x\text{Mn}_{1-y}\text{M}_y\text{O}_{2-z}\text{S}_z$ ,  $\text{Li}_x\text{Mn}_2\text{O}_4$ ,  $\text{Li}_x\text{Mn}_2\text{F}_4$ ,  $\text{Li}_x\text{Mn}_2\text{S}_4$ ,  $\text{Li}_x\text{Mn}_{2-y}\text{M}_y\text{O}_4$ ,  $\text{Li}_x\text{Mn}_{2-y}\text{M}_y\text{O}_{4-z}\text{F}_z$ , and  $\text{Li}_x\text{Mn}_{2-y}\text{M}_y\text{O}_{4-z}\text{S}_z$ , where  $0 < x < 1.5$ ,  $0.05 \leq y \leq 0.3$ ,  $z \leq 1.0$  and M is selected from the group consisting of Al, Co, Cr, Mg, Fe and La; and

a metallic oxide coated on the active material component, the metallic oxide comprising a metal selected from the group consisting of Mg, Al, Co, K, Na, Ca, Ti and Sr.

6. (Three Times Amended) The method of claim 5 wherein the alkoxide solution is selected from the group consisting of ~~Si-alkoxide~~, Mg-alkoxide, Ti-alkoxide and Al-alkoxide.

New claims 9-12 are added.